

neck, showing how they adapt themselves to the elongate character of the vertebræ and slender nuchal region generally. The numerals I. to VII. are placed opposite the cervical vertebræ. *R. a. ma*, rectus anticus major of right side; *R. a. mi*, rectus anticus minor of left side; *lc*, longus colli; *m*, muscular bellies interwoven with each other.

Fig. 5. Semidiagrammatic view of the scapular muscles seen from above or on their narrow upper edge: *B*, biceps tendon where passing over head of humerus; *I. s.*, infraspinatus tendon; *S. s.*, supra-spinatus muscle; *Ep. s.*, episcapularis; *S*, superior border of subscapularis.

Fig. 6. A transverse vertical section of the spinal elastic ligament and muscles at the second dorsal vertebra.

Fig. 7. Similar slice of the ligament at the seventh cervical, both natural size, from old ♂: *ln*, *ln**, ligamentum nuchæ; *m*, muscle in section; *v*, vascular channels.

XXI.—Descriptions of two new Species of Humming-Birds.

By JOHN GOULD, F.R.S. &c.

Helianthus micraster, Gould.

Bill black; on the forehead a band of glittering green; crown of the head, all the upper surface of the body, and the shoulders bronzy green; chest and flanks of the same hue, but rather brighter; centre of the abdomen mottled brown and green; on the throat an exceedingly lustrous spot of orange-scarlet, exceeding in brilliancy the colouring of the same part of any other member of this beautiful genus yet discovered; wings purplish brown; four central tail-feathers bronzy green, the remainder black; thighs brown; under tail-coverts white; feet dark brown, nearly black.

Total length $3\frac{3}{4}$ inches; bill $\frac{3}{4}$, wing $2\frac{1}{4}$, tail $2\frac{1}{8}$, tarsi $\frac{1}{4}$.

Habitat. St. Lucas, near Loxa, in Ecuador.

Remark. I have in my collection two specimens of this new bird, one of which is much brighter and finer than the other. They were collected in the locality above mentioned, by one of Mr. Clarence Buckley's hunters. In size this species is much smaller than any other member of the genus, even than *Helianthus mavors*. My specimens differ also from all of them in the absence of a white or buff band across the chest, in which respect they assimilate to *H. Parzudaki*, but not in the forked tail and other respects. I think it probable they are somewhat immature, and that, beautiful as they are, fully adult examples will be still finer.

Chlorostilbon pumilus, Gould.

Bill black; crown and the whole of the under surface glittering bronzy green, with a wash of blue on the chest; back and upper tail-coverts green, becoming somewhat brighter on

the latter than on the former; wings purplish brown; feet reddish brown.

Total length $2\frac{3}{4}$ inches; bill $\frac{5}{8}$, wing $1\frac{5}{8}$, tail $1\frac{1}{8}$, tarsi $\frac{3}{16}$.

Habitat. Citado and Pallatanga, in Ecuador.

Remark. Except in being of much smaller size, this little species is very like the black- and stout-billed *Chlorostilbon melanorhyncha*, which, in my 'Introduction to the Trochilidæ,' I have, as I now believe, erroneously placed as synonymous with *C. chrysogaster*, a bird inhabiting countries further north than Ecuador. The *C. pumilus* is also very nearly allied to the *C. assimilis* of Lawrence, but differs from that species in being still smaller, and in having a shorter and less deeply forked tail.

XXII.—*Investigations upon the Structure and Natural History of the Vorticellæ.* By Dr. RICHARD GREEF.

[Continued from p. 112.]

External Habit of the Vorticellæ.

In general terms the external form of the individual Vorticellan animals may be described as cup-, urn-, or bell-shaped, to which latter, as the most suitable conception, the whole group is indebted for the name of bell-animalcules (*Glockenthierchen*) conferred upon it by Ehrenberg, and for the cognate denominations of tree-bells (*Carchesium*), column-bells (*Epistylis*), operculum-bells (*Opercularia*), double-bells (*Zoothamnium*), &c. According to former notions this denomination would be still more suitable, since, as is shown by nearly all the older descriptions and figures, it was supposed that the animals were hollowed like bells or cups, and furnished with cilia only on their free margin. Subsequent observations, however (first made by Ehrenberg), showed that the anterior mouth of the bell was closed by a more or less circular disk clothed with cilia, and that it was only behind this disk that a canal led, through a lateral buccal orifice, into the body of the bell, which was filled with contents, *i. e.* solid.

The anterior *ciliated disk*, or the *rotatory organ*, is externally surrounded by a broad, membranous seam, the so-called *peristome*. When the rotatory organ expands, the peristome becomes reverted, like a cushion, and is then surmounted by the extruded ciliated disk, which is frequently upon a short neck, and at the same time separated from it by a furrow (Pl. XIII. figs. 2, 6, &c.). This separation, however, occurs more or less distinctly in the different species; nay, it may be almost entirely wanting, as for example in *Epistylis flavicans*, in which the ciliated disk appears to pass directly and without any